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STATE EDUCATION DEPARTMENT

THE UNIVERSITY OF THE STATE OF NEW YORK

BULLETIN TO THE SCHOOLS

VOL. 11 DECEMBER 1, 1924 NO. 6

Architect's sketch of new high school proposed in Newburgh

Secondary School Principals To Hear Interesting Addresses

An interesting program of addresses and discussions of interest to secondary school principals has been prepared for the annual meeting of the Associated Academic Principals on December 29th to 31st in Syracuse.

The sessions will begin with registration in the lobby of the Hotel Onondaga at 2 o'clock on the afternoon of December 29th. The council will meet at 3 o'clock and at 4 o'clock an address by Dr James Sullivan, Assistant Commissioner for Secondary Education, will be given. This will be followed by a general discussion at which John F. Hummer, principal of the Binghamton Central High School, will preside.

The annual banquet will take place at 6 o'clock that evening when Dr Arthur E. Bestor, president of the Chautauqua Institute, will speak on "Education for Democracy." James F. Taylor, acting superintendent of schools at Niagara Falls, will be toastmaster.

"Some Objects of the Junior High School upon Which Its Organization Should Be Based" will be the subject of an address at 9.30 o'clock on Tuesday morning, December 30th, by Dr W. Howard Pillsbury, deputy superintendent of schools at Buffalo. The discussion will be led by Floyd B. Watson, principal of the South Side High School, Rockville Center. Dr Walter S. Ahearn, dean of the School of Religious Education and Social Service at Boston University, will speak on "Religious Education and American Democracy." George D. Bailey, principal of Cazenovia High School, will lead the discussion. At noon there will be a meeting of members by districts to elect members of the council for next year.

The first part of Tuesday afternoon will be devoted to sectional meetings. At one section Wesley F. Williams, principal of the Nunda High School, will preside over the discussions on problems in village schools in which principals teach several classes. In another section matters pertaining to schools in which principals spend the major portion of the school day in supervision will be discussed, with C. W. Armstrong, principal of the Babylon High School presiding. F. M. Markham, principal of the Cobleskill High School, will dis-

cuss the subject, "The Status of a Supervising Principal," and John M. Sayles, principal of the Milne High School, Albany, will speak on the topic, "How May We Help the Young Teacher?" The problems of large high schools will be considered at the third section meeting at which C. Carl Alverson, principal of the Syracuse Central High School, will preside.

A general meeting will take place at 3.30 o'clock when F. E. DeGelleke, president of the association, will preside. "Making the Regents Examinations Fool Proof" will be the subject of an address by Dr Howard G. Burdge, principal of the Fredonia State Normal School. Dr Avery W. Skinner, Director of the Examinations and Inspections Division of the Department, will speak on "Proposed Simplification of Regents Examinations." A general discussion will follow.

Addresses by Dr Frank P. Graves, Commissioner of Education of New York State, and Dr Payson Smith, Commissioner of Education of Massachusetts, will be given on Tuesday evening. Prior to these addresses college dinners and reunions will take place and a musical program will be given by the pupils of the Syracuse Central High School.

The subject of the address of Doctor Graves will be "Is the Will Free?" Commissioner Smith will speak on "A Present Day Challenge to American Education."

Business meeting will be held on Wednesday morning, December 31st, after which the gathering will adjourn.

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Twenty-three States Provide for Teaching of Humaneness

Some form of legislation providing for the teaching of humaneness in the public schools, according to a leaflet recently issued by the American Society for the Prevention of Cruelty to Animals has been enacted in the following states: Alabama, California, Colorado, Connecticut, Florida, Illinois, Kentucky, Maine, Massachusetts, Michigan, Nevada, New Hampshire, New York, North Dakota, Oklahoma, Oregon, Pennsylvania, South Dakota, Texas, Utah, Washington, Wisconsin and Wyoming.

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The schoolhouse at Richland was destroyed by fire on November 12th.

Buffalo Normal School Inaugurates Radio Program

A radio broadcasting program recently inaugurated by Stephen C. Clement, head of the department of social sciences in the Buffalo State Normal School, has been receiving favorable comment. These programs have been broadcast from station WGR of the Hotel Statler, Buffalo.

On Wednesday evening, November 5th, a school musical program consisting of vocal and instrumental solos, duos and quartets was broadcast by twenty normal school students. A large number of favorable comments on this program have been received from localities representing fourteen different states and extending as far west as the Pacific coast.

Mr Clement favors these programs as a very new means of student expression and an admirable medium for creating greater public interest in normal schools.

During American Education week the following program was broadcast:

Monday, November 17th: Stephen C. Clement, Buffalo State Normal School, Introducing American Education Week; Parton Swift, Constitution Day

Tuesday, November 18th: the Rev. P. S. Cusick S. J., president, Canisius College, Patriotism Day

Wednesday, November 19th: Frank S. Fosdick, principal, Masten Park High School, Buffalo, School and Teacher Day.

Thursday, November 20th: Dr Samuel P. Capen, chancellor, University of Buffalo, Community Day

Friday, November 21st: Walter Head, headmaster, Nichols School of Buffalo, Physical Education Day

Future plans include additional musical programs, and in as much as WGR has no story hour for children, it is possible that normal school students who are studying story telling in connection with kindergarten work may present a bedtime hour program for children.

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By a vote of 37 to 11, taxpayers of Spackenkill on November 14th appropriated $40,000 for the construction of a schoolhouse. The sum of $1500 was also appropriated for the purchase of a three-acre site for the new building.

Survey Report Indicates Need for Religious Training

The public schools have a part in meeting the imperative need for a program of moral and religious education, it is stated in a report on this subject prepared by H. Claude Hardy, superintendent of schools at Fairport, and submitted to superintendents of the State.

Superintendent Hardy's report presents a survey he conducted to determine to what extent religious instruction is given in connection with the public school program, and makes recommendations of plans to follow.

Of the 123 school systems to which a questionnaire on religious instruction was sent, replies were received from 94, and of these 38 reported cooperation in a program of religious instruction, with varying degrees of success. There are 17 school systems that excuse children on school time at least once a week to attend religious instruction at local churches. The amount of time allowed for this is from 45 minutes to 1 hour. Of the 38 systems having religious training in connection with their schools 25 reported great satisfaction with the results; two reported unsatisfactory results and 11 gave no answer. Superintendent Hardy concluded that where a program has been tried, it appears that in at least two-thirds of the places, it is a success. Of the 17 school systems that excuse children to go to churches for instruction, two are not satisfied with the arrangement, and four are in the experimental stage.

It is also pointed out in the report that there are 56 of the 94 systems from which replies were received that do not have any kind of religious instruction. Twenty superintendents in this group favored some arrangement whereby religious instruction would be possible in connection with the schools. An equal number were opposed, and of the remaining 16, 15 were doubtful and one was "open-minded" on the subject.

Forty-five of the 94 superintendents are reported to favor week-day religious instruction in the public schools; 38 are opposed; ten prefer not to state their views and one is "open-minded." Superintendent Hardy concludes that less than one-half of the school superintendents are favorable to a religious instructional program.

The report mentions favorably the programs used in Elmira, Schenectady, New Rochelle, Rochester, Lockport, Plattsburg, Spring Valley, Carthage, Geneva, Ithaca, Norwich, Batavia and Tonawanda. It quotes the following paragraph from the statement of the Rochester board of education on the subject of religious instruction:

The importance of religious instruction both to the individual and to the country is generally recognized. By common consent, however, the free public school system of this country can not teach religion. The responsibility for such instruction must rest upon the home and church. But the public school can and should cooperate to the limit of its power with the home and church to the end that the boys and girls may receive effective religious instruction.

The summary and conclusion of the report follow:

In my opinion there is an imperative need for some sort of program for moral and religious education in the working out of which the public schools of the State may have a part. We as superintendents should give our attention to the problem and help solve it. We should cooperate in working out a program of education for character whether it be in the name of religious instruction or something else.

We should all understand, however, that the problem is always a local one, and act accordingly. If any community wants religious instruction, if it will by the united thought of its people agree upon a satisfactory plan and course of study approved by the local school board and the State Department of Education, and if it will employ competent and adequately trained teachers, as well as provide the necessary funds required to finance such a program, then, it seems to me, school authorities should cooperate to the extent of allowing pupils, upon the written request of the parent, to be excused for such work on school time not to exceed 1 hour a week and credit given therefor. Attendance and standards of instruction should be controlled as efficiently as in the public school program.

Under present conditions it should be remembered, however, that religious instruction as such may not be carried on in any school building. It should be done outside of school.

It should also be pointed out that religious prejudices are stronger in some communities than in others. If perfect harmony can not be obtained in establishing a suitable program of religious instruction, then let the whole thing alone! It would be worse than playing with fire to force such a program upon an unwilling community.

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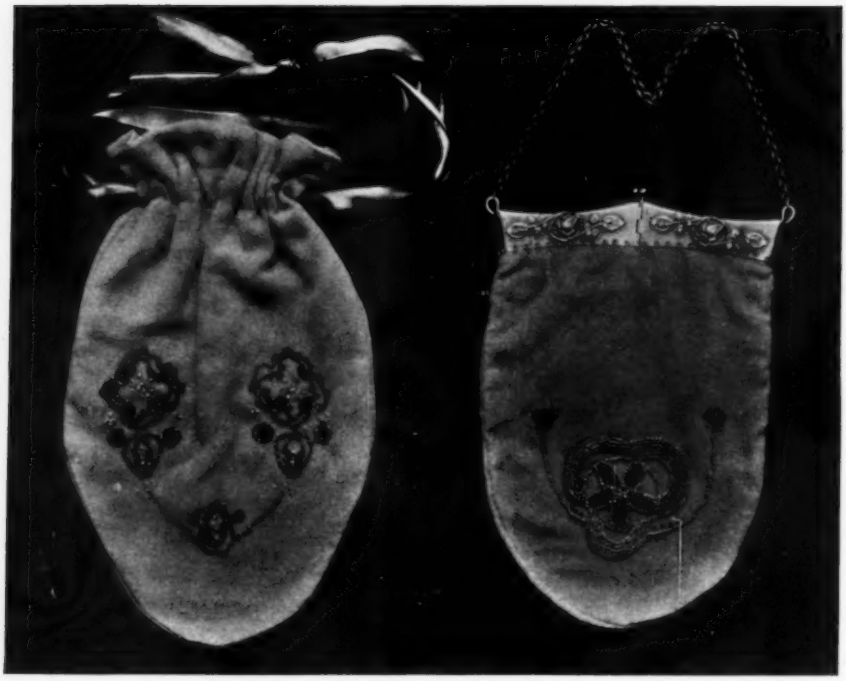
One of the features of the American Education Week program in Niagara Falls was the dedication on November 19th of the new high school.



Beaded bags designed by Fort Edward pupils

Beaded Bags Make Stimulating Design Problems

The construction and decoration of a beaded bag proved a most stimulating problem to the design students at Fort Edward High School, working under the direction of Mrs Edna W. Shattuck.

The shape of the bag was first studied for fine proportion and pleasing outline. Fine relations of length to width were emphasized in this study. When the shape was satisfactory it was traced upon a fresh sheet of paper. Circles were placed upon this form to locate the main masses of the decoration. These were moved about until the best position was secured. Smaller masses were placed to support these circular forms and a line connecting the masses was drawn. This line was carefully studied in relation to the outline of the bag as well as to the part connected.

Upon this foundation grew the decoration. The circles became open flowers of simple decorative form. The smaller masses became leaf or bud forms and the connecting line, the stem or vine. The forms were much simplified and studied for decorative treatment from forms drawn on charts or from floral units in cretonne patterns. Previous training in designing abstract units helped the students to see the decorative form.

Then a color scheme was chosen. Students were already familiar with color harmonies, relation of values and intensities and had had some experience in mixing colors. The whole design was carefully drawn and painted on white paper with opaque water color.

When the bags were made, satin, duvetyne and moire were used. In one case, where economy was necessary, sateen made a beautiful bag. Some of the bags were made at home from designs arranged in the classroom. Tracings of the designs were pricked with a coarse needle and the designs were applied to light colored materials with powdered charcoal, to dark materials with talcum powder rubbed through the holes.

Employers Stress Importance of Technical Training

Recommendations of the committee on education of the Associated Industries of New York State are presented in its report which has recently been printed. This comprehensive statement points out the importance of technical training and vocational guidance and sets forth the program adopted by the association. The foreword sums up the needs as follows:

The employers of New York State have a deep and abiding interest in education and training. The future of industry, the aspirations of untold thousands of people, the very safety of civilization depend upon the contributions which these two forces make to human thought and action. The economic success of every mercantile and industrial establishment rests in large measure upon the intelligence, knowledge and skill of the rank and file of the workers. While it is clearly recognized that intelligence is the capacity of mind and that no amount of education or training can increase individual capacity, it is also evident that unless the best methods of selection, education and training are applied to the groups of persons who are now engaged or expect to be engaged in mercantile or industrial work that standards of production can not be maintained, the quality of work improved or the supremacy of the country as an industrial nation be secured. A sound system of public education should provide an opportunity for every child and every adult. Those who follow commercial and industrial callings should have as good preparation for their responsibilities as those who are to enter the learned professions. This is only simple justice.

The program of education approved by the association follows:

1 General compulsory education for all persons up to the age of 14 years

2 General education for all persons over the age of 14 years who may desire to secure it and who are able to profit thereby

3 Proper vocational guidance for all 13, 14 and 15-year-old minors as a part of the general education plan

4 Compulsory part-time or continuation school education for employed minors as now required by law

5 Technical and trade education for grammar school graduates who wish to remain in full-time school

6 Cooperative high school courses for grammar school graduates who wish to learn and earn at the same time

7 Education for adult workers which will better train them for their vocations

8 Apprentice training courses for boys and girls who wish to take up a skilled trade and who wish to learn that trade under practical surroundings

9 Plant schools of training courses for the intelligent preparation of workers for semi-skilled occupations

10 Education for the foreign born to remove illiteracy and to prepare them for citizenship

11 Education for foremen in industrial establishments through foremen-training conferences

12 Adequate vocational training of disabled workers

13 Health education including training for prevention of accidents

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Waterloo High School Emphasizes Sportsmanship

Mimeographed copies of the athletic code of Waterloo High School have been distributed to high school pupils and to spectators at athletic contests in which the school is represented. Four points are emphasized in the code. They are:

Each person should respect his own school and therefore all teams representing the school.

Show all visiting teams and visitors your respect and good sportsmanship.

Visiting teams should be met at the railroad station and accorded every courtesy.

No unfair advantage should ever be taken even if such advantage may mean the winning of the contest. The name and prestige of the high school is worth far more than the winning of any athletic contest.

The general slogan of the code is: Cheers for the victor; no jeers for the vanquished.

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Supervisors of Music To Meet in New Haven

The Eastern Conference of Music Supervisors will hold its eighth annual session in New Haven, Conn., March 18, 19, 20, 1925. The membership of the organization is drawn from New England, New York, New Jersey, Pennsylvania, Delaware, Maryland and the District of Columbia.

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An appropriation of $18,000 for a new school building at Castorland has been voted.

Schenectady Team Wins Cross Country Championship

The first interscholastic competition in cross country running conducted by the New York State High School Athletic Association at Cornell University on November 8th was won by the team from Schenectady High School. Second place was won by Hutchinson Central High School of Buffalo and third place by Masten Park High School of Buffalo. Other contesting high school teams finished in the following order: fourth, Ithaca; fifth, Yonkers; sixth, Elmira; seventh, Cortland; eighth, Pulaski; ninth, Mexico; tenth, East High School, Rochester; eleventh, Binghamton; twelfth, Oswego.

The central committee of the athletic association authorized the experiment of conducting the meet without preliminary sectional or elimination contests, although the competitions held at Rensselaer Polytechnic Institute, Alfred University and Buffalo served in a measure to give schools in these three sections information on the ability of their teams. One hundred nineteen boys entered the Ithaca run.

Almond High School was represented by one boy. All the other schools entered full teams of five or more boys. Although the Cornell University invitation cross country run was held simultaneously with the public high school competition, only one school that is not a member of the public high school group was represented, and this school did not qualify for any of the awards.

Individual winners were as follows: first, Schilke, Hutchinson Central High School, Buffalo; second, Ritchie, Schenectady; third, Gregorie, Ithaca; fourth, Garner, Hutchinson Central High School, Buffalo; fifth, Clark, Schenectady.

The meet was well handled by the Cornell Athletic Association, and the contestants were guests of the association at the football game which followed the run. The boys proved themselves to be in good physical condition and there were no accidents. The sportsmanship was flawless. A careful study is being made of the physical condition of the boys who competed. This study will be continued for several months.

The committee in charge consisted of Principal W. H. Reals, Ithaca, chairman; Physical Director C. R. Mann, Troy; Physical Director Eugene Hofmeister, Buffalo; Principal Charles Riley, Oswego; Principal Harry Eaton, Salamanca.

Eight Hundred Lives Credited to Safety Instruction

Saving the lives of 769 children of school age is credited to safety instruction in the Detroit schools for the 5 years, 1919 to 1923, inclusive. Decrease in child fatalities has been from 1.64 a thousand in 1919 to 0.78 in 1923, a drop of more than 50 per cent; in relation to automobile registration the decrease has been from 0.85 a thousand in 1919 to 0.38 in 1923; upon the basis of total population the decrease has been from 0.22 a thousand to 0.18 a thousand.

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Dr A. C. Hill, who recently retired as Chief of the Special Schools Bureau of the Department, is the author of a bulletin of the Federal Bureau of Education on schools for adults in prisons.

Three Scholarships Awarded to Teachers of This State

Three New York State teachers were among the fifty teachers awarded scholarships of $500 each for meritorious teaching work in the field of health education. The awards were made by the American Child Health Association from funds made available by the Metropolitan Life Insurance Co. There were 1639 teachers who submitted examples of classroom work in health education. The New York State winners are: Florence Brumbaugh, New York City; Lucile Owen, Brooklyn; Marguerite Colgan, Rochester.

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Every county of New York State except one is represented in the enrolment at the New York State College for Teachers. The registration this year totals 1050, the largest in the 80 years of the school's history.

Humane Education Books Will Assist Teachers

Two helpful pamphlets to be used in the teaching of humane education are included in the recent publications of the department of humane education of the American Society for the Prevention of Cruelty to Animals. One is a suggested course of lessons in nature study treated from the viewpoint of humane education. This is the first of a series of pamphlets to be prepared by the Maxwell Training School for Teachers in Brooklyn and to be published semiannually by the American Society for the Prevention of Cruelty to Animals. It is planned to have each number in the series correlate humaneness with a subject in the elementary school curriculum. Copies will be supplied in limited numbers free of charge by the society.

The other pamphlet is known as the Poster Primer written by Mrs H. Clay Preston, director of the department of humane education of the society. It reproduces in color some of the posters submitted by the pupils of the elementary schools of New York City in the annual humane poster contest. Mrs Preston has written for each poster a verse. These verses add much to the beauty and usefulness of the primer.

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Albany Schools Described in Interesting Book

As a part of its program for American Education Week the Albany chamber of commerce issued a profusely illustrated book of 90 pages entitled "Education in Albany, an Opportunity and a Business."

As set forth in the introduction the book was prepared with the threefold purpose (1) of giving a complete report of the city's schools and colleges with the hope of stimulating further interest in these institutions and helping citizens to realize the excellence of the city's educational facilities; (2) of emphasizing the business side of education; and (3) of showing to others that Albany has a very highly developed educational system.

Under the auspices of the chamber of commerce a luncheon was held on November 19th when Commissioner Frank P. Graves spoke on the subject, "What Job for the Boy?"

Parents May Assist School in Health Program

How parents may aid in improving the health program of schools is given below by Dr Florence A. Sherman, Assistant Medical Inspector of Schools. Doctor Sherman has previously set forth in articles in the Bulletin how school officials may assist in the program. Her suggestions as to how parents may be of service follow:

By seeing that children are trained before entering school in the daily health habits of sleep, baths, food, mouth hygiene, toilet habits, water drinking, clothing, posture, breathing etc.

By responding early to all notifications of physical defects found, conferring with family physician or specialist

By believing that the school doctor, nurse and teacher are friends, not foes

By taking an active interest in the school program

By visiting schools at intervals, knowing the teachers, and noting sanitary conditions

By insisting on clean and wholesome buildings and healthful equipment

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Yonkers Classes Compete for Health Challenge Cup

Much interest has been aroused in the public schools in Yonkers by the organization of contests for the removal of remediable defects and for the achievement of health habits.

Eleven classes competed for the health challenge cup for the correction of physical defects. The class winning had all of its physical defects corrected. The next class stood 83 per cent; third, 80.6 per cent; fourth, 75 per cent.

The competition for the acquiring of health habits for which a second challenge cup was offered resulted as follows: winning class, 99 per cent; second, 98 per cent; third, 96.9 per cent; fourth, 95 per cent; fifth, 93.5 per cent; sixth, 91.4 per cent. The lowest in this group was 81.5 per cent.

This competitive system of health restoration and health achievement has been very successful in Yonkers and the Medical Inspection Bureau has suggested that it might well be utilized in many places throughout the State.

The University of the State of New York Bulletin to the Schools

Issued semimonthly during the school year by the State Department of Education

CHARLES F. PROBES, *Editor*

This bulletin is sent without charge to all schools and educational institutions of the State. To others it will be mailed postpaid for 50 cents a year, 5 cents for single copies.

Entered as second-class matter September 30, 1914, at the post office at Albany, N. Y., under the act of August 24, 1912. Acceptance for mailing at special rate of postage provided for in section 1103, act of October 3, 1917, authorized July 19, 1918.

DECEMBER 1, 1924

The Eclipse of the Sun

In view of the widespread interest in the total eclipse of the sun on January 24, 1925, the Bulletin publishes in this number an article by Professor Caroline E. Furness of Vassar College. It is believed that this article will prove interesting and helpful to teachers and pupils in making the most of this rare opportunity. The article tells clearly where to go, how to prepare to make observations and what to see. It also gives information on how the eclipse happens and what we know of the sun.

In making observations of the eclipse, all are warned not to look at the sun without a dark glass. Professor Furness has described how a glass may be prepared so that the most satisfactory results may be obtained.

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Modern Language Survey

There is to be made during the next 3 years a nationwide survey of the modern foreign languages, under the auspices of the American Council on Education and financed by the Carnegie Corporation. Preliminary outlines of the survey indicate that it will be even more exhaustive than the Latin survey.

The modern language study is directed by a central committee of high school and college teachers, with Professor R. H. Fife of Columbia University as chairman. Three special investigators have been appointed and much of the necessary preliminary work is well under way.

The hearty cooperation of all school officials is absolutely necessary in such surveys as that of the classics, just completed, and that of the modern languages, just begun.

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Associated Academic Principals

A statement to academic principals of the State recommending attendance at the annual meeting of the Associated Academic Principals has been made by Commissioner Frank P. Graves. His statement follows:

The Associated Academic Principals of the State of New York will meet in Syracuse from December 29th to 31st of this year. As this is a meeting at which so many of the problems relating to secondary education are taken up, I am very sure that every one of you will feel keenly interested in attending it. The organization represents the interests of all of the secondary schools that are members of The University of the State of New York. As such, it should be well attended.

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Members of Examinations Board

At the meeting of the Board of Regents on November 21st, the following reappointments were made to the state examinations board: Dr Livingston Farrand, president of Cornell University; and Dr John H. Denbigh, principal of Packer Collegiate Institute of Brooklyn. Both were reappointed for terms of 5 years from December 31, 1924.

Harvey O. Hutchinson, superintendent of schools at Elmira, was appointed for a term of 5 years to succeed Daniel J. Kelly, superintendent of schools at Binghamton, whose term expires December 31, 1924.

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Calendar of Educational Meetings

Associated School Boards and Trustees, Syracuse, December 5–6

National Society for Vocational Education, Indianapolis, December 11–13

Associated Academic Principals, Syracuse, December 29–31

Department of Superintendence, Cincinnati, February 21–27

National Council of Education, Cincinnati, February 25–26

Teachers conferences, second, fourth and fifth districts of Otsego county, Oneonta, December 18–19

The Coming Total Eclipse of the Sun

BY PROFESSOR CAROLINE E. FURNESS, VASSAR COLLEGE

The school children of a large section of New York State will have a rare opportunity on Saturday, January 24, 1925, of seeing a total eclipse of the sun. The sun will then be hidden from us by the dark body of the moon, and instead of the brilliant orb of day in the heavens, we shall see a black circle surrounded by a pearly halo of light, called the corona. This wonderful halo, so delicate that it can not be seen at any other time, makes a total solar eclipse of great importance to astronomers, who undertake long and expensive expeditions to remote parts of the world to observe it.

A total eclipse of the sun can be seen only in a very restricted area, although a partial eclipse is visible in a much larger region. None has occurred in this part of the United States since 1806, when one was observed in Boston and its vicinity. The next following one visible in this part of the country will be in 2024 and will be seen in New York State although its exact location has not yet been calculated.

Since a total eclipse of the sun is so important, and is such a wonderful sight, every one who lives within traveling distance of places where it can be seen, should know the circumstances, so that he can select a suitable spot from which to view it. He must also know what to expect, so as not to lose even a second of the precious time of totality, which lasts in this case 2 minutes or less. Some suggestions covering these points will be given in this article.

Where to go

A total eclipse of the sun is caused by the passage of the moon between the sun and the earth in such a way as to cast a shadow on the earth. Under certain circumstances the eclipse will be total, under others, only partial. During total eclipse, the shadow of the moon at any moment is approximately round. It traverses a long and narrow track across the earth which is called the path of totality (see illustration). Its width at the maximum is about 168 miles, and in the present case is about 110 miles. Hence every one within a distance of 50 miles of the central line of totality will see the eclipse, but it will not last for the same length of time for every one. The duration will be greatest at the central line, and will diminish to a few seconds just within the edge of the shadow. Hence it is important to know just where this central line lies.

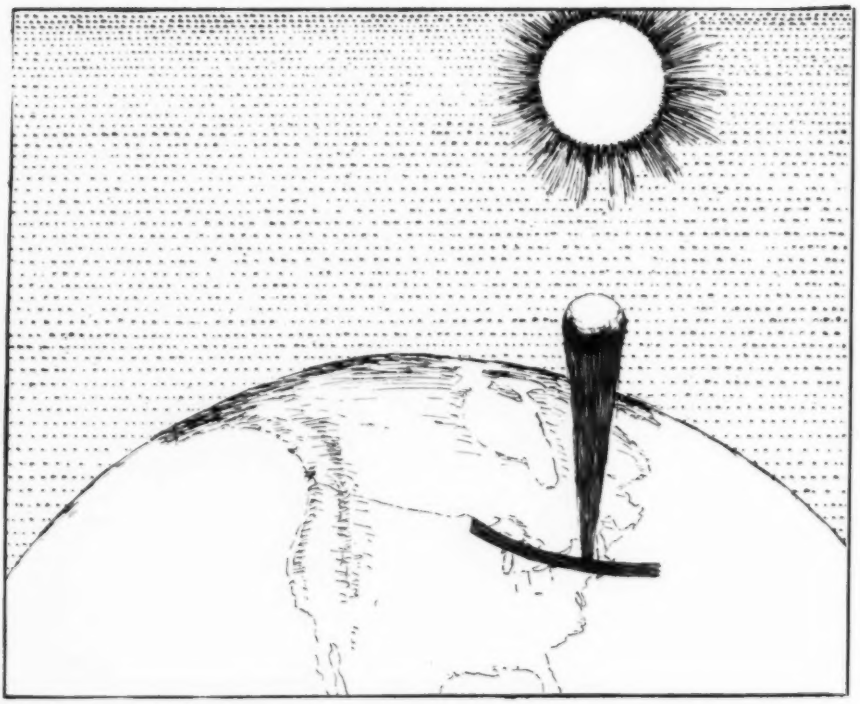
In the eclipse of January 24th, the central line enters New York State at Buffalo and passes very near to Warsaw, Watkins, Owego, Binghamton, Ellenville, Newburgh and Fishkill. It leaves the state at Carmel, crossing into Connecticut where it passes over New Haven, and thence across Long Island and out to sea.

In selecting a place for observation, certain other facts must be taken into consideration as well as its nearness to the center of totality. The most important ones are the direction of the sun and the state of the atmosphere. Too much smoke or mist will almost obscure the corona. In this case, unfortunately, totality occurs shortly after 9 o'clock in the morning, Eastern Standard Time, and in consequence, the sun, which does not rise until about 7 o'clock, will be rather low in the southeastern part of the sky. The best place for observation will be a hilltop cleared of trees, with nothing toward the southeast which can be the source of smoke or mist. Avoid especially smoke from a city. Be sure also that the road to the hill will be kept open in snowy weather, such as we are apt to have in January.

The place of observation should be selected well in advance of the day of the eclipse, but a person who is not in the habit of watching the sun may not be able to tell where it will be on any particular day at a given time in the morning. It happens, luckily, that the sun will be just as far south of the equator on November 19th as it is on January 24th, and its path across the sky will be nearly the same on the two dates, except that there is a little difference in the time the sun rises. That however, will not interfere with the selection of the place of observation. Therefore, on November 19th, visit the selected spot and find by actual observation whether it is favorably located for watching the sun from 7.30 o'clock to 10.30 o'clock. Such a preliminary study may well be made by the boy scouts.

What to see

On a scientific eclipse expedition, the astronomers take along several different kinds of apparatus for making observations, but very interesting phenomena can be seen without a telescope. Any school child who has been



Path of totality at eclipse

trained to notice carefully what goes on in the natural world can make observations which will be very instructive and always a pleasure to remember.

First of all, each one must have a piece of dark or smoked glass. Under no circumstances should any one attempt to look at the sun before the time of totality without some such protection for the eyes. Glass can be smoked very well with burning camphor. Experiment with it a little beforehand in order to get just the right density. Then fasten a piece of clear glass against the smoked surface to prevent rubbing. Some persons recommend the use of a photographic film or plate which has been fogged and then developed. Be sure to have it ready in advance.

A lantern should be taken along, because it sometimes grows quite dark during totality, and artificial light is necessary if any records are to be made. Take a good watch or clock set to standard time. Field glasses or a spy glass or a small telescope will add very much to the pleasure of the observer. Provide yourself also with a notebook for drawings and notes, also a good sized piece of cardboard and a sharp stout needle for piercing it. If there is no snow on the ground, take also a large white cloth such as a sheet or bedspread.

Equipped with all of these articles, go to the chosen spot well in advance of the time of the beginning of the eclipse. It will be impossible in this article to state exactly what this time will be for any given locality, except for those published in Nautical Almanac. At Buffalo, partial eclipse begins at 7.59 o'clock, and ends at 10.22 o'clock, while the middle of totality is at 9.07 o'clock, and the duration is 1.8 minutes. For Ithaca and Geneva the times are 8.00, 10.26 and 9.10, while the duration for Ithaca is 1.8 minutes and for Geneva 1.5 minutes. For Poughkeepsie the corresponding times are 8.01, 10.30, 9.12 and the duration 1.9 minutes. All of the times are Eastern Standard.

Too much emphasis can not be placed upon getting everything ready beforehand, as well as having the mind prepared for the event. Everything will happen on schedule time, and there will be no opportunity to go back and get something left behind.

The first thing to note is the beginning of the eclipse. Watch the sun with the dark glass, and at the predicted time a small dent will appear on the upper right-hand edge of the sun, caused by the moon. Note the exact time when it is distinctly visible. The dent will grow larger minute by minute until the sun looks as if a bite had been taken from it. Soon more than half the sun will be covered and it will appear like a crescent, although not exactly the shape of the crescent moon. The crescent will grow smaller and smaller until just before the moment of totality it becomes a mere thread of light.

It is very interesting to make drawings of the partially eclipsed sun. Before leaving home prepare in the drawing book a series of circles about the size of a quarter. Every 15 minutes, noting the exact time, draw in one of the circles the exact shape of the eclipsed edge of the sun. When the eclipse is over, complete the circle of the moon in these drawings and compare its size with that of the sun. It should turn out to be just a little larger.

Take the sheet of cardboard, pierce it in several places with the needle, and hold it so that rays from the sun will fall on it at right angles. Little images of the partially eclipsed sun will be formed on a paper placed a few inches behind it. In fact all of the spots of light which pass through small openings anywhere about will show crescent-shaped images of the sun.

Meantime, if there is no snow on the ground, spread out the white cloth, fastening the edges down with stones. It is not used until just before totality, but have it in readiness.

By the time the sun is half covered, the sky is noticeably darker, but it has a peculiar livid color unlike that of twilight. It may be necessary to use the lantern. Fowl will react and probably go to roost again. There will be a fall in temperature, although this is not likely to be very marked in the winter time, so early in the morning.

Looking toward the sky you may see a few of the brighter planets and stars near the sun. Venus, Mercury and Jupiter will be in a close group about 25 or 30 degrees to the west of the sun, while Altair, a star of the first magnitude, will be about the same distance to the northwest. In the same direction from the sun and about the same distance beyond Altair will be the brilliant star Vega. Other parts of the sky will hardly be dark enough to show the stars. Only 50 miles away the sun is still shining and illuminating the sky.

As the critical moment of totality approaches, a hush falls upon the expectant watchers. The crescent is now a veritable thread of light, but still brightens the landscape. The moon's shadow has not quite reached the observer but is traveling toward him with a velocity of a thousand miles an hour. The tops of distant mountain tops will be in shadow while the plain at their feet is still in the sunlight. As the shadow approaches it looks like a great thunder cloud, moving with terrifying swiftness, and when it reaches the observer, darkness falls with startling rapidity, and the incomparable corona with its long streamers flashes out instantly.

Just a few seconds before totality begins, the shadow bands will appear, rippling over the white surfaces. They are parallel stripes of shadow which move with surprising swiftness. Note their width, their distance apart, their direction according to the points of the compass, and the exact moment they appear and disappear. They will be visible again just before totality ends, lasting until a few seconds afterward. Observations of these bands are greatly desired, and one member out of each group of observers should be appointed to pay special attention to them.

The greatest object of interest, however, is the corona which extends out on either side of the sun in long streamers more than a million miles in length. Near the sun the streamers are curved, and arched and twisted together, so that the great French observer of eclipses, Janssen, likened them to "masses of bright hair in confusion." Drawings of the corona are of great value, and those who have skill in that direction should depict what they see. They must be sure to have everything in readiness in advance, drawing paper mounted on a board, with a circle representing the sun on it, and pencils sharpened and at hand. The total time the corona is visible will be less than 2 minutes, and there will not be time to waste in hunting for drawing materials. Those who are planning to draw the corona, must rest the eyes

by giving them special protection, particularly if there is snow on the ground.

Other appendages of the sun which may be seen at the time of an eclipse are the rosy-red cloudlike prominences which jut out from the sun behind the edge of the moon. They are composed largely of glowing hydrogen, and have the color of a hydrogen filled dirigible when it bursts into flames. With a small telescope the form of the prominences may be studied and drawn.

After totality is over, the corona disappears in a flash, the shadow bands play over the white surfaces as they did about 2 minutes before, the thread of the solar crescent becomes broader, the sky lightens, the stars disappear, the landscape slowly takes on its normal appearance, and by 10.30 o'clock, the eclipse of January 24, 1925, is a matter of past history.

How does the eclipse happen?

If the eclipse is due to the passage of the moon between the sun and the earth, the question naturally arises: Why do we not have an eclipse of the sun every month at new moon? The answer is that the path of the moon in the heavens is inclined to that which the sun appears to describe during the year, and when the new moon occurs it is either too far above or below the sun to come directly between it and the earth.

The two paths intersect each other in two points opposite to each other in the sky, and if a new moon occurs within a certain fixed distance of either of these points, an eclipse must occur. Usually it is only partial, but if a new moon occurs very near to the point of intersection, the eclipse may be total. Twice a year a solar eclipse must occur, and sometimes additional ones occur, but they are not often total. During the 100 years from 1874 to 1974 the total eclipses will number fifty-six, and of these only seven are visible from parts of the United States.

What do we know about the sun?

Only a brief summary can be given here of our knowledge about the sun. Astronomers are working constantly, studying different parts of it, with many different kinds of apparatus. Since there are certain facts which can be learned only at the time of an eclipse, they take very great pains to secure good observations of it at that time.

The sun is an enormous mass of glowing gas 866,000 miles in diameter. It is the source of all the light and heat upon the earth. Toward its center it is tremendously compressed by the enormous pressure of the overlying parts, and its exact condition can only be surmised. Possibly all matter has been reduced to some primordial state by the intense heat.

In the outer portions there is freedom of motion and a tendency to expand and move outward. Hot clouds are constantly rising to the surface, cooling, condensing and falling back into the intensely heated interior, thus making a kind of vertical circulation. The outer portions of these clouds form the light giving part of the sun which we call the photosphere. Through the telescope it shows a mottled appearance such as would result from a mixture of hotter and cooler clouds.

Outside of the photosphere is the solar atmosphere. Although intensely hot, it is of a lower temperature than the photosphere, being estimated to be about 6000° Centigrade. It contains in a gaseous condition many, but not all, of the elements found on the earth, such as iron, calcium, sodium, hydrogen, helium etc. The lower part lies close to the photosphere; possibly some parts extend down into the spaces lying between the clouds which compose this photosphere. The heavier gases at least seem to be there.

The outer portions of the solar atmosphere contain for the most part hydrogen, helium and calcium, and form the rosy ring around the sun called the chromosphere. From it project the prominences which sometimes float like clouds and sometimes are ejected to enormous distances with great rapidity and then burst into fragments like bombs. In fact, they are called hydrogen bombs. This whole atmosphere is a more or less continuous mass of glowing gases in which there are many local differences of condition arising from continual changes in temperature, pressure and magnetic field, due to the strong vertical circulation of intensely heated gas.

The corona is entirely different. There is evidence in it of an element unknown on the earth, something much lighter than anything we have here, extending far out from the sun, farther than hydrogen which is the lightest element we know here. For lack of a better name we call it "coronium." We also have evidence of other matter in a very finely divided state

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Local History of New York State

Governors under George II

Fort Niagara in 1758

For more than 7 years George Clarke, as president of the council and as lieutenant governor, exercised executive powers. His right to the former title was contested by Rip Van Dam, who headed the popular party. Van Dam made some nominations to office, while Clarke commanded the fort. From March to October 1736 the city of New York was close to civil war, recovering its balance when Clarke's commission as lieutenant governor arrived from England. The appointment in the following year of Lord Delaware as governor of New York and New Jersey threatened to end Clarke's administration, but Lord Delaware did not leave England, and soon resigned the office.

Two features of Clarke's administration were the steady though disputed progress of representative government and the development of trade. He had the wisdom to dissolve an assembly which in 9 years of existence had lost touch with the people, and call a new one. Advance in commerce was slow, yet in 1738 the province was importing from Great Britain silk manufactures and other goods; from Ireland linen and canvas; from British colonies rum, lime juice, snuff, pimento, sulphur, strawplatt, hides, deerskins, conchshells, mahogany and ebony, and bringing in negroes; and it was importing wines from the Madeira and Canary islands, besides various commodities from other colonies and plantations not under the British rule. The report of the revenue officer, which affords this information, contains the statement that negroes were brought from Africa, but in lesser number than formerly. The province was exporting flaxseed, staves, grain, hides, deerskins, ox horns, snuff, lumber and beeswax, besides articles imported from tropical countries.

It is on record that George Clark favored the inposing by parliament of a stamp act on the colonies. Governor Clarke felt an intelligent interest in the settlement of the interior lands of the colony. During his term of office, William Johnson, from County Meath, Ireland, came into the Mohawk valley and entered on his remarkable career.

Clarke's successor, George Clinton, although appointed in July 1741, did not arrive in New York until September 1743. It was his ill fortune to make an enemy of James DeLancey, whom he had named chief justice. DeLancey, supporter of executive privilege un-

der Cosby, became the powerful ally of the assembly and the popular party against Clinton. During this administration war broke out between France and England. Clinton occupied himself with maintaining the Indian alliance, and in the pursuit of this policy called into action the uncommon abilities of William Johnson. The frontier suffered from Indian attacks, Saratoga being destroyed and its inhabitants killed or led captive to Canada. This struggle was brought to an end in 1748.

A census taken in 1746 revealed a population in the province of 61,589, exclusive of Albany county, in which an enumeration could not be made on account of the war. The entire population of the province 3 years later was found to be 73,448, that of Albany county, 10,634.

Sir Danvers Osborne became governor in the autumn of 1753 and 2 days later committed suicide. He was succeeded by Lieutenant Governor James DeLancey.

During DeLancey's first year there occurred at Albany an event of much significance. That was the congress of eleven colonies held in 1754 to devise means of resisting French aggression. The main product of the congress was a plan of union, signed by seven colonies. It provided for the appointment by the crown of a president general and the choice of a grand council by the colonial assemblies. The particular care of the council was to be the management of Indian relations, and it was impowered to raise armed forces and levy imposts or taxes. The plan was not approved in England or generally in the colonies.

In 1755 New York became the scene of war again. New York troops and New York Indians took part that year in the battle of Lake George. The capture of Oswego by the French occurred in 1756; the following year saw the fall of Fort William Henry; in 1758 was fought the battle of Ticonderoga, an unsuccessful attempt to reduce the French fort at that place; in 1759 the French were driven from Ticonderoga and Crown Point, and Fort Niagara was taken by Sir William Johnson, commanding regulars, New York militia and Indians. During these years DeLancey was the executive head except for a period of less than 2 years when the office was filled by Sir Charles Hardy. DeLancey died in office in 1760, and that year saw the passing away of George II.

Total Eclipse of the Sun

(*Concluded from page 92*)

that is capable of reflecting the light of the chromosphere beneath it. The coronal form changes at different eclipses, showing long equatorial streamers at the time of sunspot minimum and shorter ones at the time of a maximum number of spots. It may be that there are slight changes in the streamers during an hour or so, and attempts have been made to discover them, but with no success. In fact, it may be stated quite frankly that no satisfactory theory of the formation of the corona has yet been offered to astronomers. That is one reason why there is so deep an interest in observing the totally eclipsed sun.

References on the sun are given below to several books which will prove interesting and full of information, although perhaps a little difficult for a school boy or girl. All advanced work on the sun depends upon the laws of physics, such as those underlying the use of the spectroscope, the theories of the structure of the atom, and ionization, ending with the Einstein theory. There is hardly any department of astronomy which is so full of fascinating discoveries or that offers such a wide opportunity for theorizing, when based upon a thorough understanding of the necessary physical principles.

Books of reference

Abbot, Charles G. The Sun. Appleton. 1911

Young, Charles A. The Sun and the Phenomena of Its Atmosphere. Appleton

Mitchell, Samuel A. Eclipses of the Sun. Columbia Univ. Press. 1923
Most recent and most complete.

Todd, Mabel Loomis. Total Eclipses of the Sun. Little, Brown. 1900

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How the new elementary school system is scientifically planned is set forth in an elementary school report which has been issued by the Buffalo board of education. It contains a foreword by Superintendent of Schools E. C. Hartwell and deals with some of the changes in method developed during the past few years.

Notes from the Field

Ground was broken on November 13th for two buildings at Columbia University to house the departments of physics and chemistry. They will cost $2,150,000.

By a majority of 233 votes the proposition to appropriate $100,000 for the erection of a ten-room school building in Ogdensburg was carried on November 4th.

The common council of Yonkers has unanimously approved ordinances appropriating $1,232,625 for the city's school program. Of this total, $1,055,000 is for the first part of the grammar school building program, $150,000 is extra money needed for the construction of the Franklin High School, and $27,625 for the construction of a gymnasium for School 6.

At a special school meeting on November 6th taxpayers of Toddsville voted to erect a new school at a cost not to exceed $4500.

As a result of a "Learn English Campaign" in Rochester the pledges of 2500 individuals to join a class in English and learn to speak, read and write the language better were obtained. The original goal had been 2000 but when this mark was passed the goal was raised.

The new high school at Ripley was opened to the public on November 6th. The new structure was built at an estimated cost of $79,000 and contains adequate classrooms, a gymnasium, an auditorium, a rest room for teachers and other features of modern school construction.

A30m-N24-16,700(3372)

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